

REMARKS

Reconsideration of the application is respectfully requested for the following reasons:

1. Rejections of Claims 1-8 Under 35 USC §102(b) and of Claims 9-11 Under 35 USC §103(a) in view of U.S. Patent No. 4,747,036 (Ichikawa)

These rejections are respectfully traversed on the grounds that the Ichikawa patent fails to disclose or suggest a programmable photo-coupler-isolated wide band modulator for a high voltage power supply that includes:

- a **frequency converter unit** that receives a low voltage (DC) and converts it into a **high frequency low voltage AC** (in the power converter of Ichikawa, power from AC source 100 is supplied to circuit 11 through isolation transformer 111 so as to be *rectified* rather than converted into a high frequency low AC voltage);
- a **high voltage module**, as claimed, for receiving the AC voltage from the frequency converter unit and increases the AC voltage (the power converter of Ichikawa does not include a frequency converter, and therefore cannot possibly include an equivalent to the claimed AC-AC high voltage module); and
- a modulation unit that converts the **high frequency, high voltage AC** into a wideband modulated **DC** voltage.

According to the Examiner, the claimed frequency converter for converting low voltage DC into low voltage AC corresponds to transformers 111-115. This interpretation is clearly incorrect. Transformers 111-115 isolate the AC inputs and do not perform a low voltage DC to low voltage AC conversion.

In addition, according to the Examiner, the claimed high voltage module corresponds to circuits 11-15. Again, this interpretation is clearly incorrect. The output of circuits 11-15 is a **DC voltage** (col. 3, line 3), which follows from the fact that these circuits include a rectifier and voltage regulator. Further, the DC voltage output by circuits 11-15 is not even a relatively high

voltage. Thus, neither transformers 111-115 nor circuits 11-15 correspond to either the claimed frequency converter or high voltage module. Of course, since the output of circuits 11-15 is DC, there can be no equivalent to the claimed AC to DC wideband modulation unit.

Essentially, the claimed modulator includes the following elements:

low voltage supply unit → frequency converter unit → high voltage module → wide band modulation module,

which perform the following conversions:

low voltage **DC** → low voltage **AC** → high voltage **AC** → wide band modulated **DC**.

The circuit of Ichikawa, on the other hand, does not ever convert to a high voltage AC. Instead, the low voltage AC from the source is immediately supplied to an isolation transformer for rectification by circuits 11-15. Instead of conversion from **DC** to **AC** to **AC** to **DC**, the fault detector and power converter of Ichikawa receives power from an AC power source 100, supplies the power to fault detection circuits 11-14 that output a **DC** signal (see col. 3, lines 6), and eventually outputs an optically isolated low voltage **DC** detection signal to a control circuit via NPN phototransistor TR21.

This **AC** to **DC** to **DC** to **DC** isolation circuit has nothing to do with the modulator of the claimed invention, and is not suggestive thereof. The Ichikawa circuit does not include any elements even remotely suggestive of the claimed frequency converter, which converts a DC input into a **high frequency, low voltage AC signal**, nor does the Ichikawa circuit include any elements corresponding to the claimed high voltage module, which converts the **high frequency, low voltage AC signal** output by the frequency converter into a **high frequency, high voltage AC signal** that can be converted into a wideband modulated DC voltage, as claimed.

The modulator of the present invention takes a low voltage power supply and outputs a programmable DC voltage, whereas the Ichikawa patent discloses a fault detector apparatus

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coupled to a power converter to determine whether the power converter is error. The power converter of Ichikawa does not frequency convert the input voltage into AC so as to increase the modulation bandwidth and thereby provide a programmable DC output. As a result, it is respectfully submitted that the Ichikawa patent does not anticipate or suggest the claimed invention, whether the Ichikawa patent is considered individually or in combination with any of the other references of record, and therefore withdrawal of the rejections of claims 1-11 under 35 USC §§102(b) and 103(a) is respectfully requested.

Having thus overcome each of the rejections made in the Official Action, withdrawal of the rejections and expedited passage of the application to issue is requested.

Respectfully submitted,

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